




5. OPERATION











- **How to enter the offset value into the HAKKO FR-802**

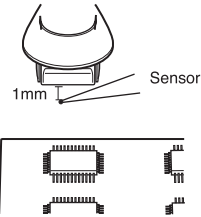
**NOTE:**  
The temperature of the hot air differs depending on the nozzle size. It is available to set the offset value of the temperature.

Example: If the measured temperature is 410°C and the set temperature is 400°C, the difference is 10°C (need to be decrease by 10°C). So, enter -10 as the offset value.

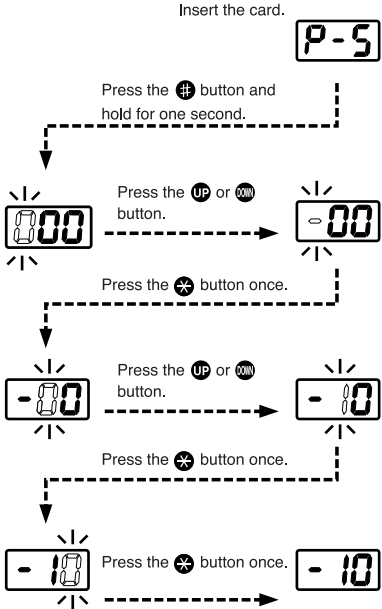
1. **Insert the control card into the slot in the front of the unit.**
2. **Press  button on the temperature setting section for more than one second.**
  - The station is in the offset value setting mode. The HUNDREDS digit will begin to flash.
  - This will set the station to offset value entry mode.
3. **Enter the offset value.**
  - The allowable ranges for offset values are -50 to +50°C (in °F mode, -90 to +90°F).


**CAUTION**  
During the offset value entry mode, the nozzle temperature is controlled in accordance with the current offset value.

- a) **Entering the HUNDREDS digit**
  - Press the  or  button to set the desired value. Only 0 (for positive value) or - (for negative value) can be selected (either in °C or °F mode). When the desired value is displayed, press the  button to enter. The TENS digit will begin to flash.
- b) **Entering the TENS digit**
  - Press the  or  button to set the desired value. Only 0 to 5 can be selected (in °F mode, 0 to 9). When the desired value is displayed, press the  button to enter. The UNITS digit will begin to flash.
- c) **Entering the UNITS digit**
  - Press the  or  button to set the desired value. Any value from 0 to 9 can be selected. (Either in °C or °F mode). When the desired value is displayed, press the  button, then the  is displayed and the new offset value is now entered into the system memory and heater control will begin.



**NOTE:**  
Place a K thermocouple of the thermometer as shown to measure the nozzle temperature. The distance from the nozzle is 1mm (0.04 in.)



**NOTE:**  
When the  button is pressed the current offset value is displayed for two seconds, then returns to show the temperature setting.

5. OPERATION

- **QFP Removing**

1. **Set the temperature and adjust the air flow control knob.**  
Adjust the flow rate of the hot air while watching the airflow meter. Wait until the temperature is stable.

**WARNING**  
Use the HAKKO FR-802 at an air flow level of 5  $\ell$ /min or more.

2. **Place the FP pick-up under the IC lead.**  
Slip the FP pick-up wire under the IC lead. (Figure 1) If the width of the IC does not match the size of the FP pick-up, adjust the width of the pick-up by squeezing the wire. In case of PLCC (Plastic Lead-ed Chip Carrier) or small components such as chip resistors, remove by using tweezers, etc.

3. **Heating.**  
Hold the handpiece so that the nozzle is located directly over, but not touching the IC, and allow the hot air to melt the solder. Be careful not to touch the leads of the IC with nozzle.

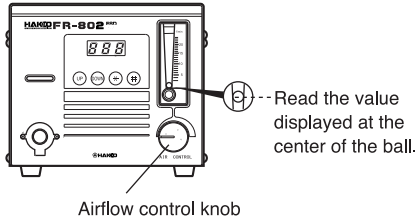
4. **Remove the IC.**  
Once the solder has melted, remove the IC by lifting the FP pick-up. (Figure 2)

5. **Remove any remaining solder.**  
After removing the IC, remove remaining solder with a soldering iron and wick or desoldering tool.

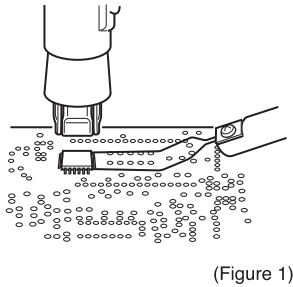
- **QFP Installing**

1. **Apply the solder paste.**  
Apply the proper amount of solder paste and install the SMD on the PWB (Printed Wiring Board).
2. **Preheat the SMD**  
Refer to the figure to preheat SMD. (Figure 3)
3. **Soldering**  
Heat the lead frame evenly. (Figure 4)
4. **Cleaning**  
When soldering is completed, clean the residual flux from the board with an appropriate cleaner.

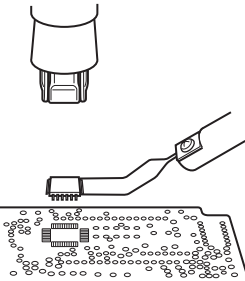
**NOTE:**  
Soldering with hot air has many advantages, such as the inherent ability to pre-heat the component being replaced. As with any soldering process, however, there is always the possibility of forming solder balls, bridges between leads, and inadequate solder joints. Always inspect the finished solder joints for structural and electrical integrity.



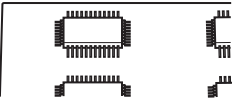
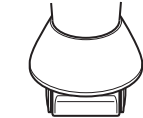
Airflow control knob



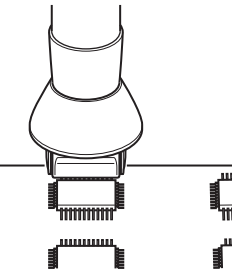
(Figure 1)



(Figure 2)



(Figure 3)




(Figure 4)




6. PARAMETERS/INITIAL RESETTING (INITIALIZATION)

- **Entering the parameters**







1. **°C (Celsius) or °F (Fahrenheit) temperature display selection**






**Power save time**  
The power save function automatically turns off the hot air when it has blown continuously for a specified amount of time. Power to the heater is turned off and then the air is stopped after the handpiece cools.




**CAUTION**  
If the power is turned OFF before the parameter setting procedure is completed (the  does not display), the new parameters will not be stored in the memory.


- **Initial reset**  
Turn the power switch ON while simultaneously pressing the , ,  and buttons on the temperature setting section. The station will be reset to the following initial values:

The HAKKO FR-802 has the following two parameters:  
1) °C or °F temperature display selection  
2) Power save time (select 30 or 60 minutes)  
Once the station enters parameter mode, set the parameters in the order shown below. After all the parameters have been set, normal operation will be resumed.

1. Turn the power switch OFF.
2. Insert the control card into the slot in the unit.
3. Press and hold down the  and  buttons on the temperature setting section simultaneously and then turn the power switch ON.
4. Continue holding down both buttons until the display shows  (for Celsius) or  (Fahrenheit). When the display shows  or , the station is in the parameter input mode.

- Press the  or  button will cause  or  to be displayed alternately.
- Press the  button to select the scale. The power save time may now be entered.

- When the station enters power save time setting mode, either 30, 60 or  $\infty$  is displayed. Either 30 minutes, 60 minutes or  $\infty$  can be selected.
- Pressing the  or  button will cause 30, 60 or  $\infty$  to be displayed alternately.
- Press the  button to enter your selection. The sensor temperature may now be displayed.

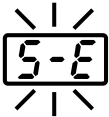
- To end parameter input mode, press the  button. After displaying the temperature setting for two seconds, the station returns to normal operation

°C or °F temperature display selection	°C
Power save time	30 minutes
Temperature setting	300°C

7. ERROR MESSAGE


When the error detection software in the HAKKO FR-802 detects an error, a message is displayed to alert the operator. See “Troubleshooting” for procedures to correct the error.


- **Sensor Error**



- **Heater Error**



This error occurs when there is the possibility of a sensor failure (or a failure in the sensor circuit).  flashes and the power is shut down.

This error occurs when the temperature of the hot air is falling even though the heater is on.  flashes to indicate the possibility of a heater failure.